

Future of Logistics Work

Introduction

In an age of rising automation, China's last-mile delivery workforce faces large-scale displacement.

This project explores how to prevent large-scale job losses caused by automation and reimagine inclusive logistics systems through design.

Reimagining Last-Mile Logistics: A Community-Led Transition in Automated Urban Futures

This project investigates how a future logistics system—rooted in community governance, supported by strong policy, and enabled by responsible technology—could absorb displaced workers, improve service equity, and preserve social resilience. Using Nanjing University of the Arts as a living case, this research maps the current system, imagines the preferable future, and outlines a transition path that re-positions the community from passive recipients to proactive service organizers. This booklet collects the research findings, design methods, system maps, co-design outputs, and the envisioned future ecosystem.

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Future Job system map

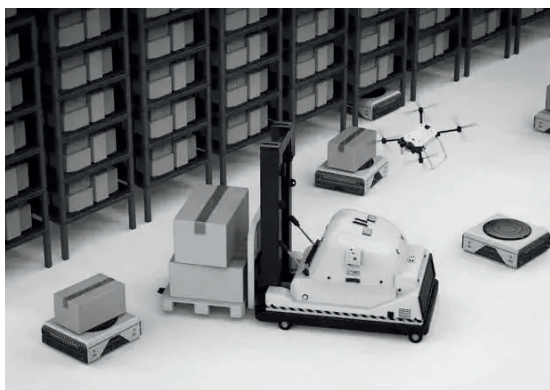
- Embedded in the community, co-management and co-governance
- Redefining logistics as public infrastructure



PROJECT BACKGROUND AND PROBLEM CONTEXT

Structural Contradictions Between Automation And
Employment

- The hidden risks behind China's logistics boom
- The size and vulnerability of the labor force





Without intervention, automation may replace over 70% of last-mile logistics jobs by 2045, displacing millions of low-skilled urban workers.

This will not only worsen social inequality but also destabilize consumer demand and urban resilience in the long run.

In China's current logistics ecosystem, last-mile delivery employs over 15 million workers, mostly in unstable, platform-managed gig roles. With platforms like JD, Meituan, and Cainiao accelerating automation—including unmanned vehicles, delivery robots, and smart lockers—the marginal cost of replacing human labor is rapidly decreasing. According to the China Employment Research Center, the per capita operating cost of autonomous delivery bots is projected to be 40–60% lower than human couriers by 2035. Without systemic policy or design intervention, these frontline jobs will disappear without sufficient time or pathways for social adaptation.

This transformation is not merely a technological shift—it risks triggering a negative economic feedback loop. As large portions of the labor force lose income, domestic consumption will shrink, further eroding platform profits and forcing firms to double down on automation to maintain margins. Meanwhile, government expenditures on unemployment support and social security will rise. Simulations from Tsinghua University's social policy group show that if 50% of courier jobs are lost by 2040 without new employment channels, urban consumer demand could contract by 15%, and logistics inequality will deepen, especially in aging or low-income communities.

DRONES



DELIVERY MAN



UNMANNED VEHICLE



COURIER



AUTOMATIC SORTING



SORTER





SECONDARY RESEARCH AND SYSTEM ANALYSIS

High-risk Links In The Logistics System

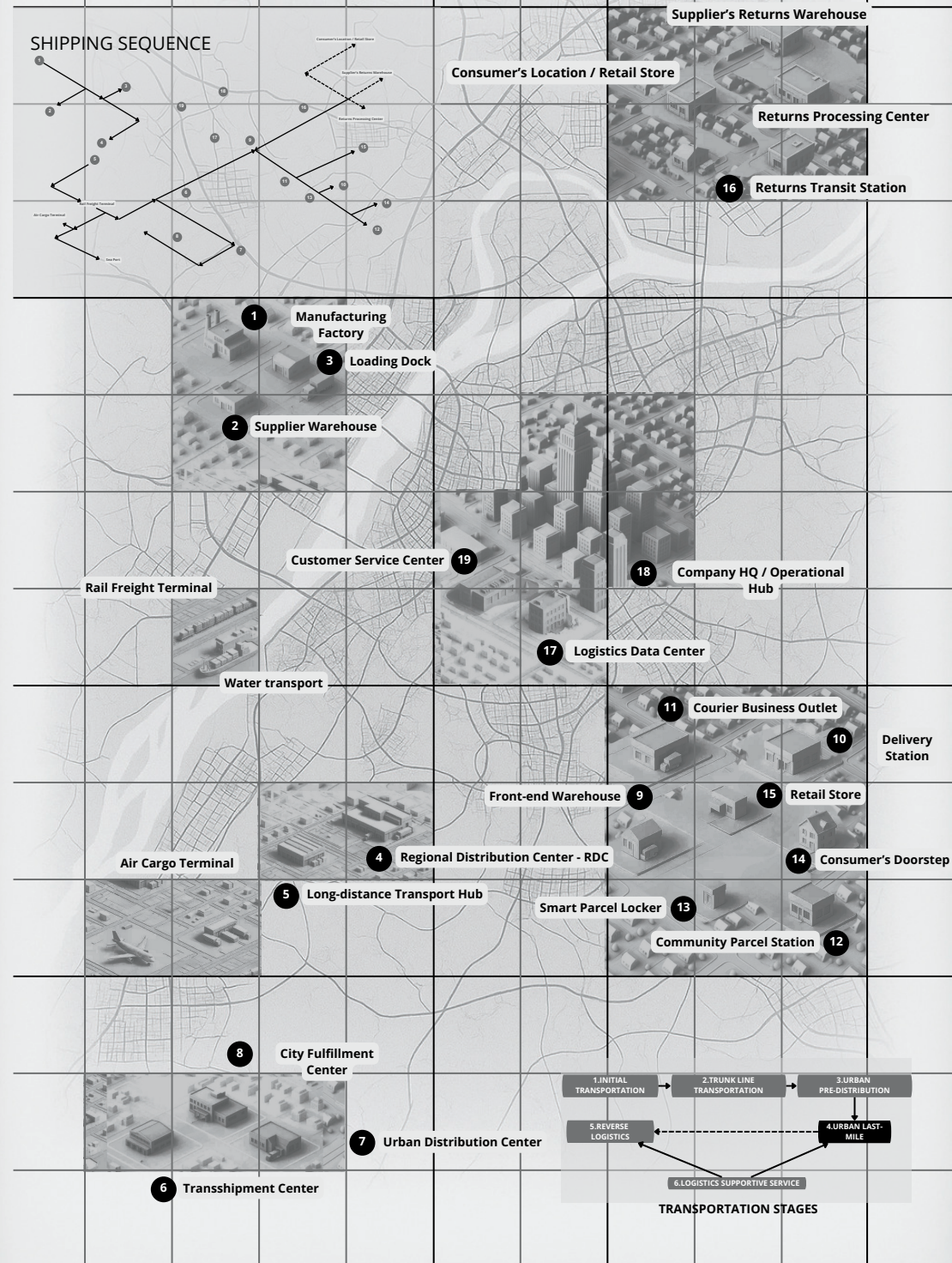
- Front-end automation has been completed, and the remaining is the "last mile"
- Terminal logistics: labor-intensive but lagging transformation

PESTEL Analysis

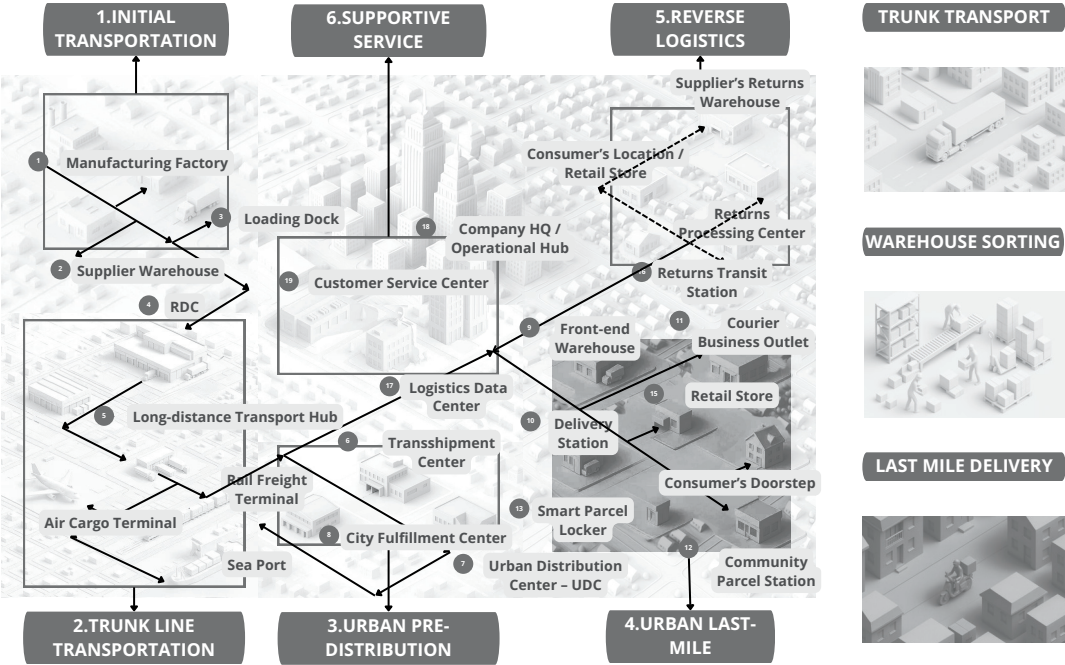
- Literature review of multiple dimensions such as policy, technology, and society

Trend Summary

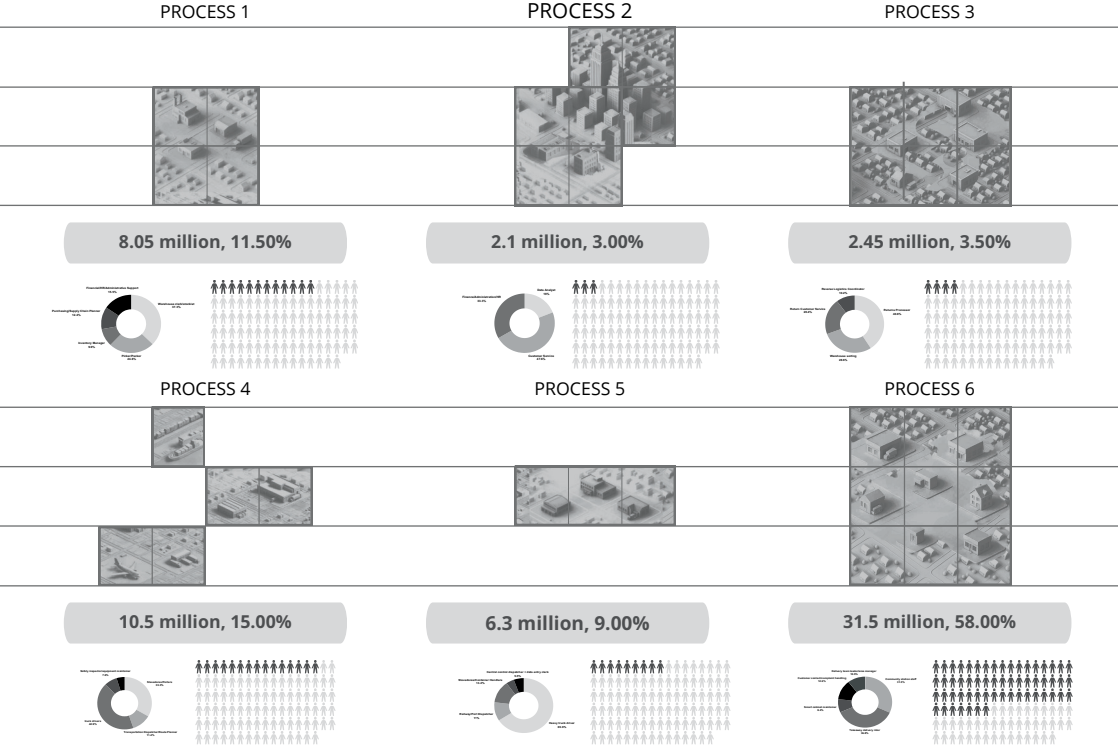
URBAN LOGISTICS PROCESS



LOGISTICS PROCESS FROM AN URBAN PERSPECTIVE



NUMBER AND DISTRIBUTION OF JOBS



In China's logistics system, labor is distributed in the stages of upstream warehousing, trunk transportation, regional sorting and terminal distribution. Over the past decade, automation technologies such as intelligent warehousing systems, AGV robots, and automated sorting lines have been widely adopted in the first three stages. These technologies have significantly reduced labor demand and increased operational efficiency.

However, last-mile delivery remains highly labor-intensive, employing over 60–70% of all frontline logistics workers. Unlike upstream processes that prioritize scale and efficiency, last-mile delivery is deeply embedded in urban complexity, requiring human interaction, situational judgment, and customer service. Due to this complexity and dispersed geography, it is the least automated and most vulnerable sector in the logistics chain. While pilot applications of delivery lockers and autonomous vehicles exist, they have yet to reach scalable maturity, leaving millions of workers exposed to potential displacement without systemic preparation.

PESTLE ANALYSIS BASED ON LITERATURE REVIEW

POLICY & LEGAL

- 1.The "14th Five-Year Plan for Modern Logistics Development" proposes the development of new business models such as online freight, shared logistics, and unmanned delivery.
- 2.The Ministry of Transport encourages the development of commercial applications such as drone delivery and optimizes air cargo security inspection procedures.
- 3.The "Guidelines for the Construction of a Smart Logistics Standard System for Transportation" proposes to accelerate the construction of a smart logistics system and promote the standardization of autonomous driving and smart shipping.
- 4.The General Office of the Communist Party of China Central Committee and the General Office of the State Council issued the "Implementation Plan for Effectively Reducing Logistics Costs in the Whole Society", encouraging the development of new logistics models that combine platform economy, low-altitude economy, and unmanned driving.
- 5.Shanghai has issued the "Action Plan for Optimizing and Improving the City's Logistics, Warehousing Facilities and Services (2025-2027)" to promote the construction of a smart logistics network.
- 6.The report on the development trend of the low-altitude economy points out that the airspace below one thousand meters will be gradually delegated to prefecture-level cities in the next two years, which will be conducive to the development of drone delivery.
- 7.At present, China has not yet formally enacted legislation to fully open up "autonomous delivery by unmanned vehicles" on urban roads.
- 8.Since the Civil Aviation Administration of China started piloting the "low-altitude economy", drone delivery regulations have been gradually relaxed, but are still restricted by airspace management.
- 9.Many places have introduced temporary policies to restrict the operation of "express delivery robots" in high-traffic areas (such as Hangzhou and Guangzhou).

TECHNOLOGY

- 1.JD.com's "Asia No. 1" unmanned warehouse implements full-process robot operation to improve operational efficiency.
- 2.SF Express has launched a pilot program for a "low-altitude drone logistics distribution system" in the Guangdong-Hong Kong-Macao Greater Bay Area to improve the logistics efficiency of urban agglomerations.
- 3.The HH-100 commercial unmanned transport aircraft independently developed by the Aviation Industry Corporation of China successfully completed its first flight and is mainly used in feeder logistics.
- 4.The scale of my country's intelligent logistics equipment market has grown by more than 16% year-on-year for many consecutive years, and the intelligence level of automatic sorting systems, unmanned delivery vehicles, etc. has continued to improve.
- 5.The Ministry of Transport is promoting the application of technologies such as automatic guided vehicles (AGVs) in ports and other terminal hubs to improve operational efficiency.
- 6.Drone logistics reduces transit links, saves logistics circulation time, and improves logistics timeliness.

MARKET & ECONOMY

- 1.In 2024, my country's express delivery business volume reached 1745 billion pieces, and express delivery business revenue reached 1.4 trillion yuan, an increase of 21% and 13% respectively year-on-year.
- 2.It is estimated that the scale of China's logistics drone market will be close to 150 billion yuan in 2030, with a compound annual growth rate of 57.0%.
- 3.In 2023, the scale of China's logistics drone market has reached 6.13 billion yuan, and it is expected to continue to maintain a high growth trend in the next few years.
- 4.In 2024, SF Express drones transported 4.27 million pieces of cargo, with a transport weight of 1,401 tons and a total flight mileage of 1.32 million kilometers.
- 5.In 2024, the unit price of my country's express delivery business was 8.01 yuan per order, a year-on-year decrease of 6.3%, and price competition was fierce.
- 6.Since 2019, the average labor cost in the express delivery industry has increased by 10-15% per year.
- 7.JD Logistics, Meituan, SF Express and other companies have invested more than 40% of their R&D in automation and unmanned technology.
- 8.The autonomous driving freight sector in China and the United States has entered a stage of high capital investment. Companies such as TuSimple and Didi Freight have completed L4 testing

SOCIAL & WORKFORCE

- 1.As society pays increasing attention to the rights and interests of platform workers, platforms such as Meituan and JD.com have carried out competitive reforms around labor welfare.
- 2.The social security costs of front-line couriers and riders are increasingly becoming a key burden in the platform's human resource expenditure, and a resurgence of "flexible employment" has occurred in some cities.
- 3.Labor organizations in the food delivery and express delivery industries are exploring collective bargaining models, but have not yet formed universal institutional support.
- 4.my country's express delivery industry has made tremendous efforts to cut costs in the transit and transportation links, and the demand for cost reduction on both the collection and delivery ends will continue to increase in the future.
- 5.Price competition in the express delivery industry is fierce, unit prices continue to decline, and the profit growth rate of some express delivery companies is slower than the growth rate of scale.
- 6.The public's acceptance of new interaction methods such as driverless cars and unmanned lockers has increased year by year. The number of Meituan's driverless car orders has exceeded 200 orders per day in some areas.

ENVIRONMENT & SUSTAINABILITY

- 1.Urban green logistics policies promote the use of electric/unmanned tools to replace fuel vehicles for terminal delivery.
- 2.Green delivery zones have been set up in some areas to encourage unmanned vehicle delivery to reduce carbon emissions.
- 3.Environmental pressure has led companies to prefer deploying a "centralized automatic distribution" system to reduce the carbon footprint caused by multiple manual deliveries.

TRENDS

1	Unmanned warehousing systems gradually replace traditional manual warehouse operations	21	The platform's "efficiency-oriented" culture reduces the substitutability of human resources
2	The terminal unmanned delivery vehicle has achieved large-scale testing in high-density cities	22	The public's acceptance of unmanned vehicles, unmanned lockers and other equipment continues to rise
3	Popularization of intelligent sorting system improves logistics turnover efficiency	23	The attractiveness of high-intensity, low-security jobs continues to decline
4	Drones are used for feeder logistics and delivery in remote areas	24	Public sympathy for riders' plight drives platform welfare reform attempts
5	Ports and hubs use AGV and automatic loading and unloading systems	25	National policies encourage the construction of low-altitude economy and intelligent logistics infrastructure
6	Unmanned technology extends from trunk lines to city grid-level terminals	26	Local cities compete to build smart logistics pilot areas
7	AI dispatching system improves control over the entire express logistics process	27	Regulations related to unmanned delivery have not yet been fully opened and standardized
8	The interaction between smart cabinets and user interfaces becomes a key touchpoint in the delivery experience	28	There are regional legal pilot restrictions on driverless cars and delivery robots
9	The unit price of express delivery continues to decline, and the price war intensifies the cost pressure of enterprises	29	Lagging regulations become a bottleneck for technology commercialization
10	The platform will invest a large amount of R&D resources in unmanned technology to reduce labor costs	30	The government has increased its regulatory investment in social security and employment compliance pressure
11	Terminal delivery has become the biggest cost burden and competition focus for logistics companies	31	The construction of smart logistics standard system promotes industry unification
12	High investment in unmanned equipment has become a barrier to entry for capitalized companies	32	Urban green logistics zone policy promotes the combination of electrification and unmanned operation
13	Automation drives up enterprise concentration, shrinking the survival space for small and medium-sized logistics companies	33	Centralized distribution system reduces carbon emissions caused by multiple manual deliveries
14	Since 2019, the labor costs of logistics companies have increased by 10-15% annually	34	Policies encourage clean energy logistics solutions that replace fuel vehicles
15	Instant urban delivery becomes the mainstream, and the timeliness of demand is increasing	35	Enterprises strengthen automation and carbon emission coordination capabilities due to ESG requirements
16	The positions of couriers and riders have gradually changed from "main force" to "transitional jobs".	36	Reconstruction of urban public spaces to accommodate the deployment of unmanned delivery facilities
17	Labor and social security costs have become a key bargaining chip in platform employment	37	Platform companies redefine the form and rights of "labor" through technological means
18	The revival of flexible employment system to avoid formal employment responsibilities	38	Technology, policy, capital and user behavior jointly shape the future distribution structure
19	Workers began to organize informal collaborative networks to fight for their rights	39	Unmanned logistics promotes the transition of traditional labor relations to platform algorithm governance
20	Unmanned logistics systems will accelerate the disappearance of traditional jobs	40	Semi-automatic" intermediate logistics structure construction



PRIMARY RESEARCH AND FUTURE CO-DESIGN

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Future Scenarios and Preferred Future

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PARTICIPANTS/ AUDIENCE



DU QICHENG
Frontline Logistics Workers

SF Express Nanjing Gulou District courier, has been working for seven years, and was responsible for delivery in the lockdown area during the epidemic.



HONG YAOZHONG
Frontline Logistics Workers

Meituan deliveryman, graduated from Nanjing University of the Arts in 2021, and operated a self-organized WeChat chat group in college to run errands for Nanjing University of the Arts students to pick up express parcels.



ZHANG YUZHOU
Frontline Logistics Workers

Yunda sorter, often works night shifts.



TAO YASHENG
Frontline Logistics Workers

Food delivery rider, worked part-time for two years as a flash deliveryman, taking care of the family and running orders to maintain income.



CHEN SIYUAN
Platform Interaction Designer

An interaction designer for a leading logistics platform, he was responsible for the "safety reminder mechanism" module of the rider-side App.



YE CHENNING
Platform Interaction Designer

Product experience designer at Cainiao Network, researching the human-computer interface design in express delivery stations



JIA WEILAN
Policy/Regulatory Representative

The head of the human resources department of a state-owned enterprise once provided suggestions for the Nanjing Municipal Human Resources and Social Security Bureau on the reform of the platform employment system



FANGZHOU WU
Future Designer

A critical practitioner who designs the future, and the host of this project

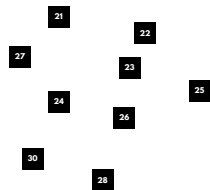
TREND MAP CO-DESIGN

EACH PARTICIPANT WILL BE GIVEN A TABLE CONTAINING 40 TRENDS.

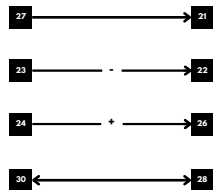
THEY NEED TO FIND THE CONNECTION BETWEEN THE TRENDS BASED ON THEIR OWN INSIGHTS INTO CHINA'S TERMINAL LOGISTICS SYSTEM.

THE ULTIMATE GOAL IS TO GET A RELATIONSHIP MAP BETWEEN TRENDS AND EXTRACT KEY TRENDS FROM THE TOTAL.

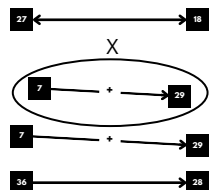
1. IDENTIFYING TRENDS



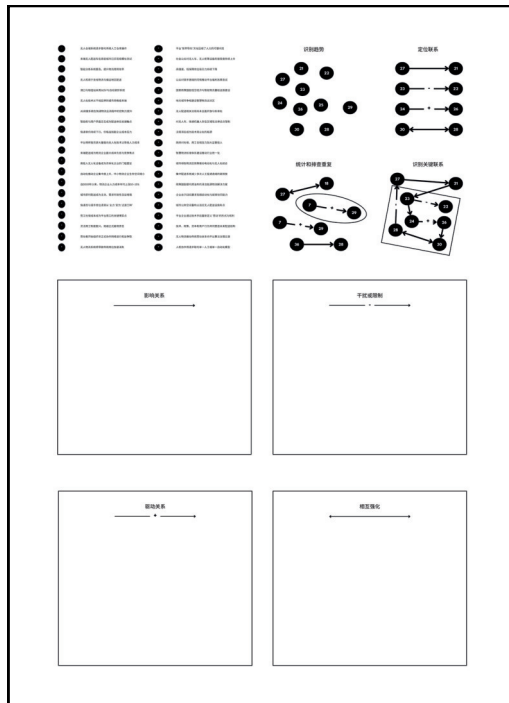
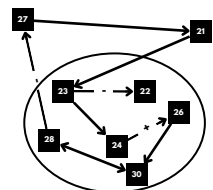
2. POSITIONING CONTACT



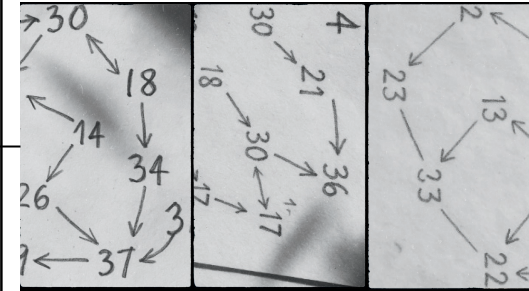
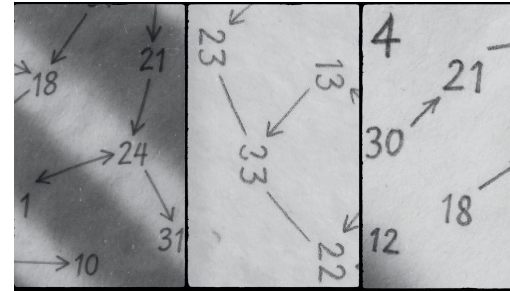
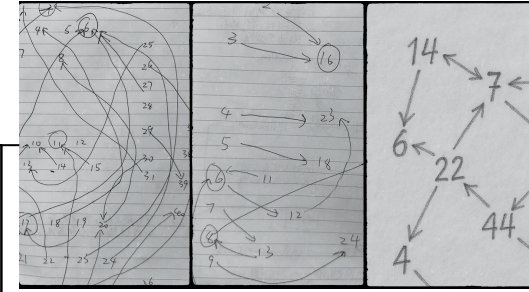
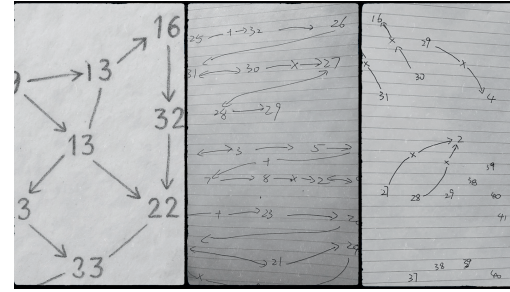
3. TROUBLESHOOT DUPLICATES



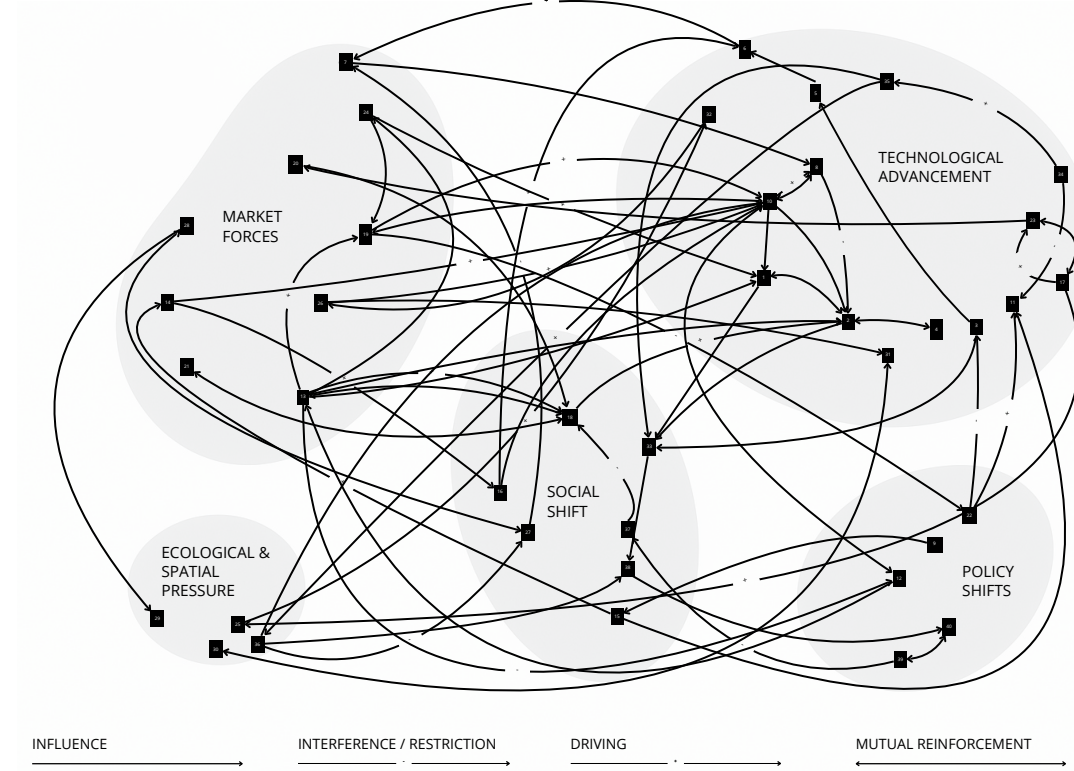
4. IDENTIFY KEY CONNECTIONS



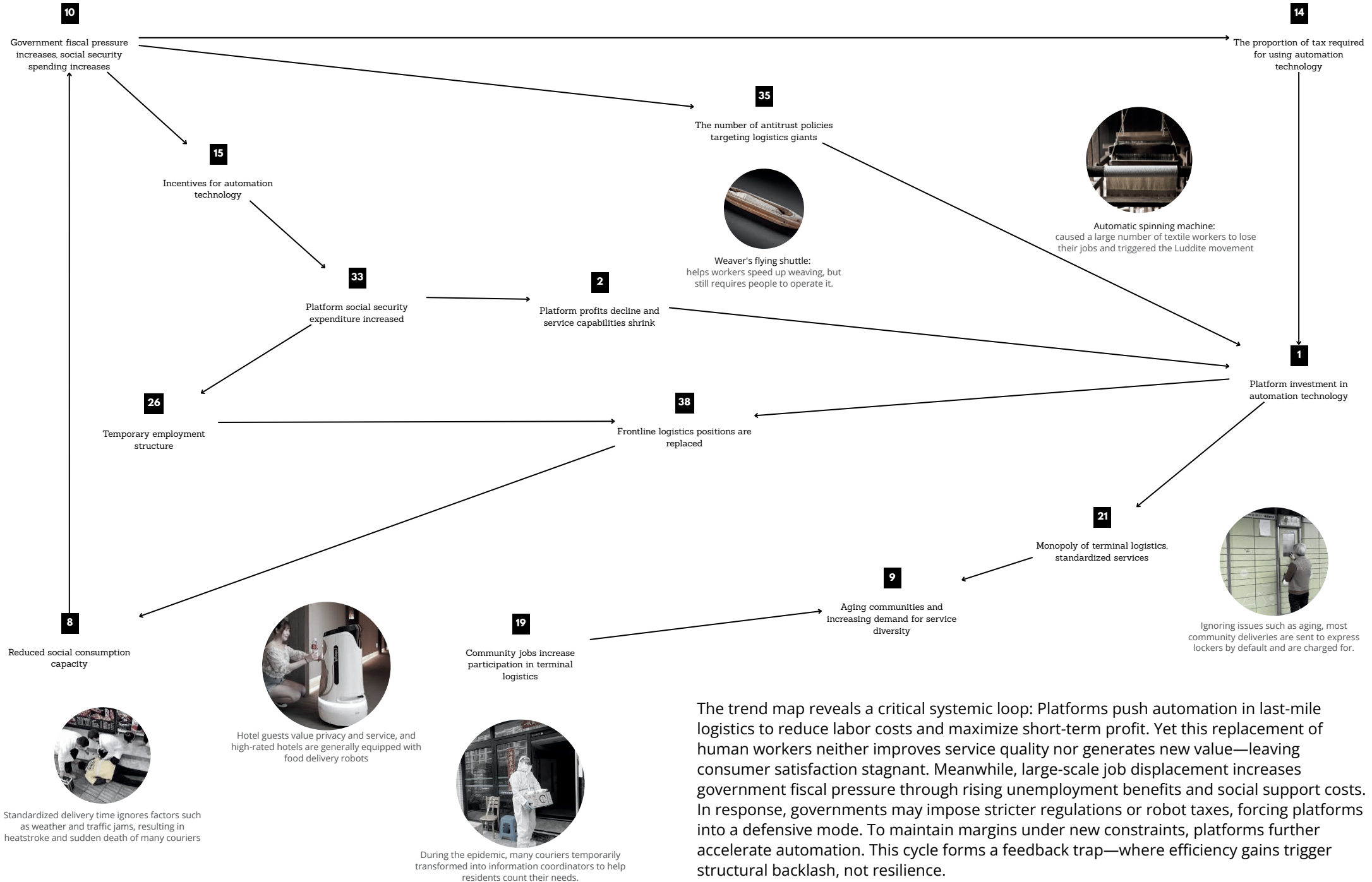
TRENDS MAP



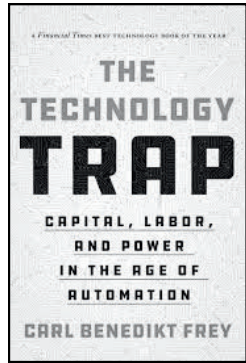
FEEDBACK FROM PARTICIPANTS



FRAGMENTATION AND REEMBEDDING IN TERMINAL LOGISTICS



KEY INSIGHTS



Director of the Future Jobs Project at Oxford
Carl Benedikt Frey:

"The social consequences of technology are not determined by the technology itself, but by how society chooses to use it. When society fails to effectively distribute the benefits of technology, replacement technologies may exacerbate inequality and trigger political backlash."

GOVERNMENT

- While encouraging the development of platform automation technology, the government is also worried that unemployment will cause instability, so its response measures are often delayed.

PLATFORM

- Platform-led automated technology monopolizes terminal delivery, and consumers and workers lose their voice

COMMUNITY

- The potential of the community has not been fully developed, and platform-led automation transformation and monopoly will lead to standardized services, weakening the voice of workers and consumers.

CASE STUDY



- 1878 The telephone exchange system first appeared
- 1890s Bell System regularizes women's labor
- 1919 National Telephone Operators Strike
- 1920s Automatic wiring systems gradually replaced manual wiring
- 1930s-1940s The Great Depression and the temporary buffer of World War II
- 1950s-1960s Automation accelerated and many jobs disappeared
- 1970s-1980s Jobs disappeared

- For older employees, companies will proactively stop training them in new skills and instead retain them in their current jobs until they retire naturally or reach the minimum pension age.
- The government has worked with telecommunications companies to provide skills training in typing, secretarial skills, basic computer operations, etc. to unemployed operators.
- But in the long run, due to the lack of systematic reemployment paths, these temporary buffers have instead reinforced the social role perception that women can only engage in "transitional and auxiliary positions".

- Terminal logistics shows community service potential during COVID-19



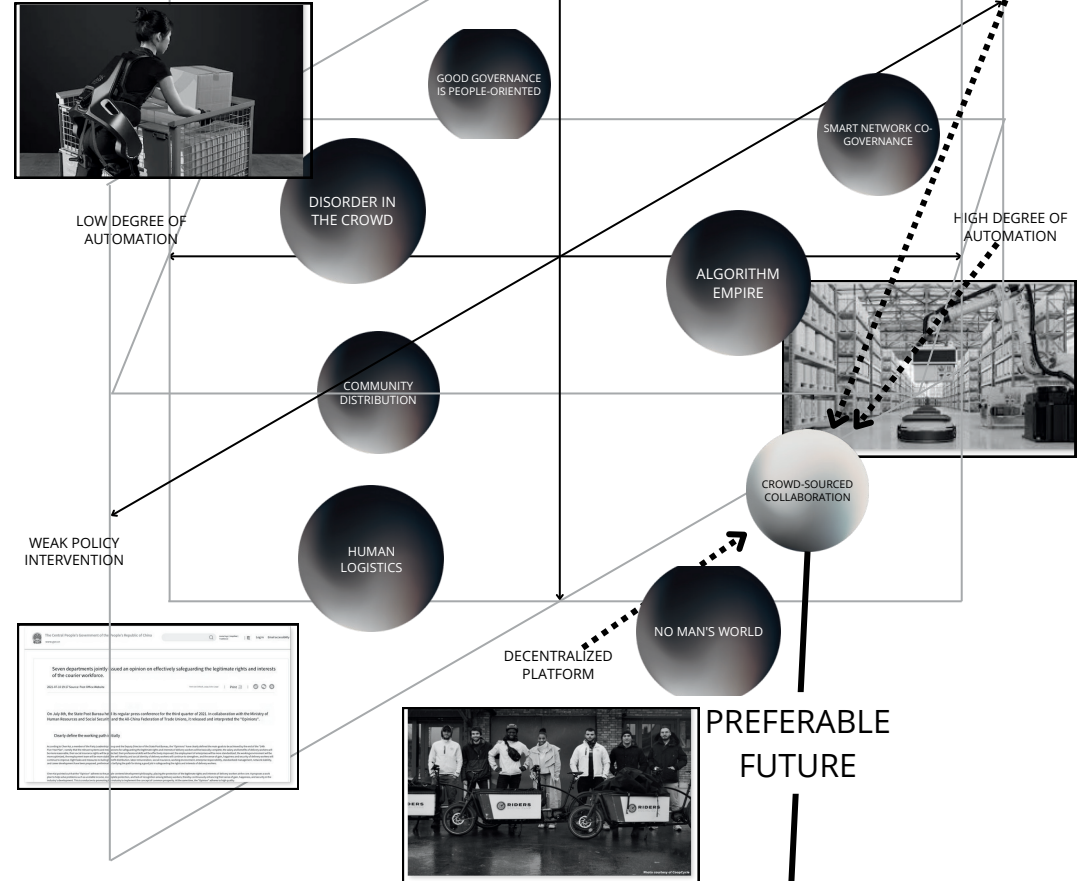
- March-April 2022 Couriers worked with volunteers to knock on doors and deliver food and medicine
- Mid-term lockdown Couriers transformed into information coordinators to help residents with group purchases and count material needs.
- June 2022: Unblocking Residents who lacked attention from couriers established new emotional connections during the epidemic
- 2022 Couriers assist communities in tasks such as health code checks and material delivery route optimization
- After 2022 Some local govts are trying to include couriers and food delivery drivers in the community service framework.

- The community has the ability of "flexible coordination" to make up for the blind spots of the technical system.
- The community has the potential to reshape interpersonal relationships, which helps to enhance the social resilience of the system.
- The community has the ability to transform roles, which helps to explore new positions.

FUTURE SCENARIO

Three axes:

- degree of technology automation
- degree of policy intervention
- degree of community dominance



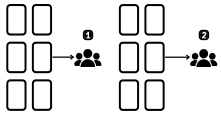
- Automation is irreversible. Only by actively embracing technology can we improve system efficiency and reduce long-term operating costs.
- Community-led efforts can reabsorb the labor force replaced by technology as local service providers, rebuilding social connections and employment resilience.
- Policy intervention ensures platform concessions and fair governance, so that efficiency dividends can truly benefit residents and grassroots workers, and avoid monopoly and deprivation caused by technology concentration.

CO-DESIGN WORKSHOP

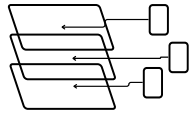
WORKSHOP PROCESS AND OBJECTIVES

ROLE-PLAYING CARDS PROVIDED TO PARTICIPANTS

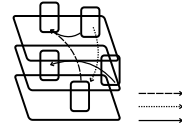
1.ASSIGN ROLES



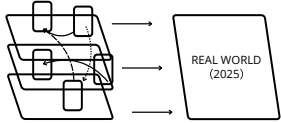
2.CLASSIFICATION ROLE



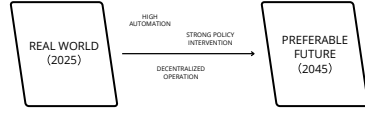
3.IDENTIFY CONNECTIONS



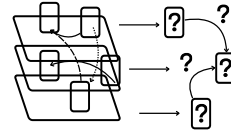
4.MAPPING THE SYSTEM TO REALITY



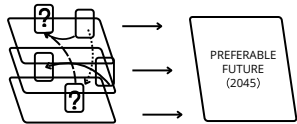
5.INTRODUCING THE PREFERABLE FUTURE SCENARIO



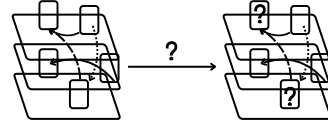
6.DISCOVER NEW CHARACTERS AND CONNECTIONS



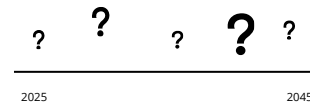
7.MAPPING NEW SYSTEM TO FUTURE SCENARIO



8.DISCUSS HOW TO ACHIEVE

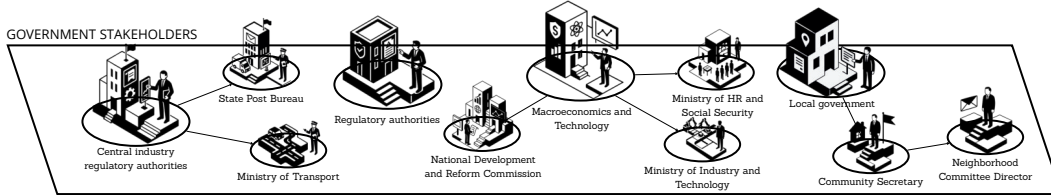


9.PRODUCE A ROADMAP

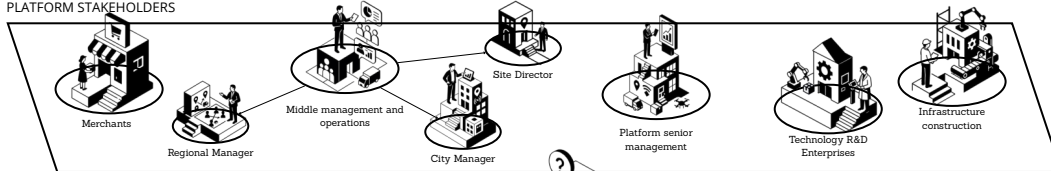


ROLE-PLAYING CARDS PROVIDED TO PARTICIPANTS

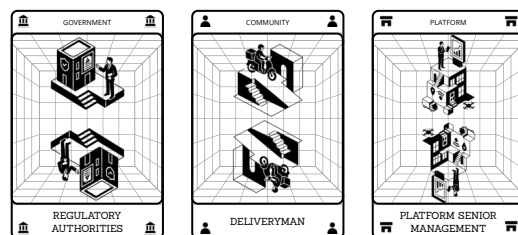
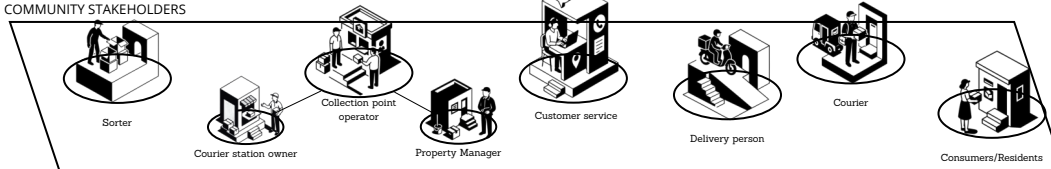
GOVERNMENT STAKEHOLDERS



PLATFORM STAKEHOLDERS

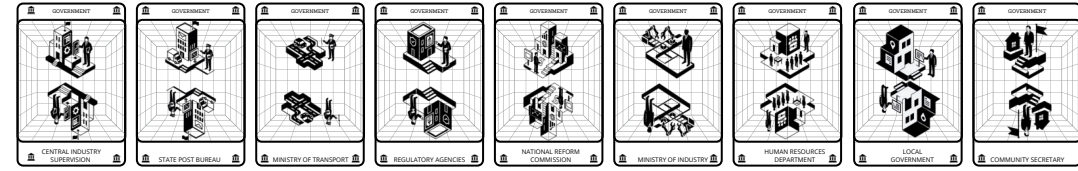


COMMUNITY STAKEHOLDERS

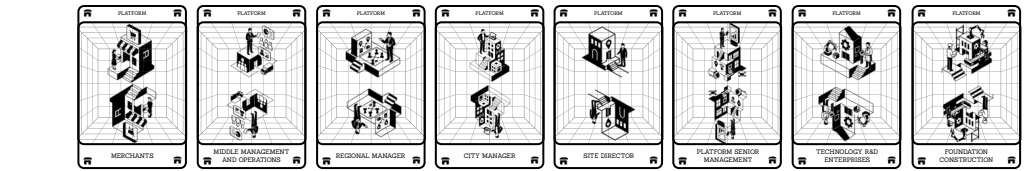


- Each participant will be divided into two groups and receive role cards based on project stakeholders.
- Each card is classified according to government-related, platform-related, and community-related
- Each group will play the role of the content on the card and deduce the current logistics system map

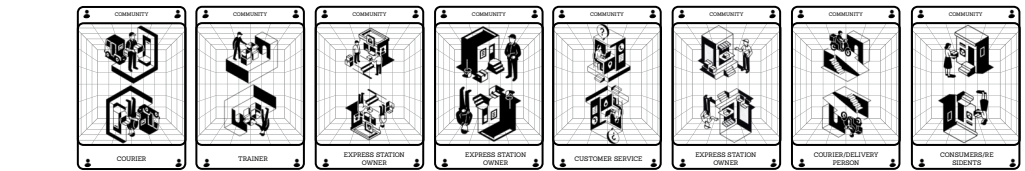
GOVERNMENT STAKEHOLDERS



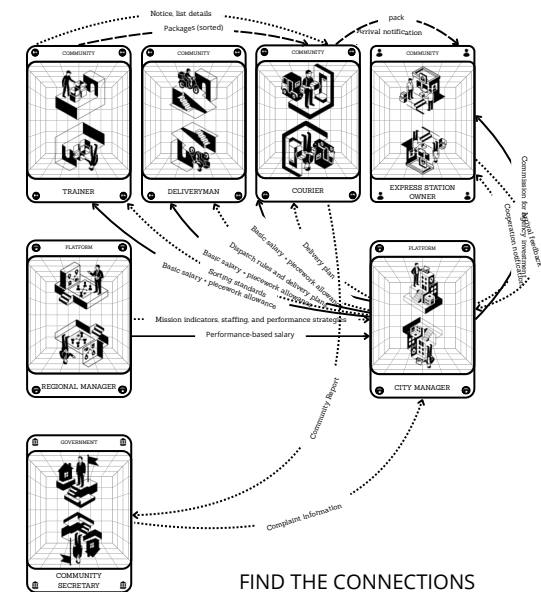
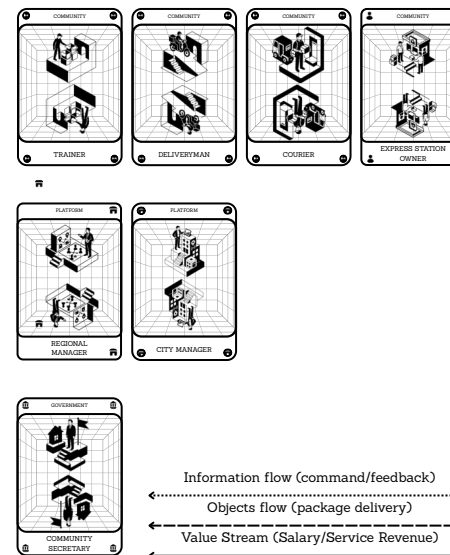
PLATFORM STAKEHOLDERS



COMMUNITY STAKEHOLDERS



EACH GROUP IS ALLOCATED 5-7 CARDS



FIND THE CONNECTIONS

CO-DESIGN WORKSHOP

GOVERNMENT	PLATFORM	COMMUNITY
1 District Postal Administration	1 Gulou District Distribution Center	1 South Gate
2 District Epidemic Office	2 Gulou Transfer Station	2 Security Office
3 NUA Committee Office	3 Gulou District Operations	3 Cainiao Station East Gate
4 Gulou District Government	4 Nanjing Operation Center	4 Dormitory Building No. 45
	5 Nanjing Operations Headquarters	5 Dormitory Building No. 46
	6 Gulou District Urban Operations	6 East Gate
	7 Takeaway Gulou Dispatch Center	7 Student Service Center
	8 Takeaway System Maintenance	8 Dormitory Building
	9 Intelligent Equipment Maintenance	9 Administrative offices

LOCATIONS INVOLVED

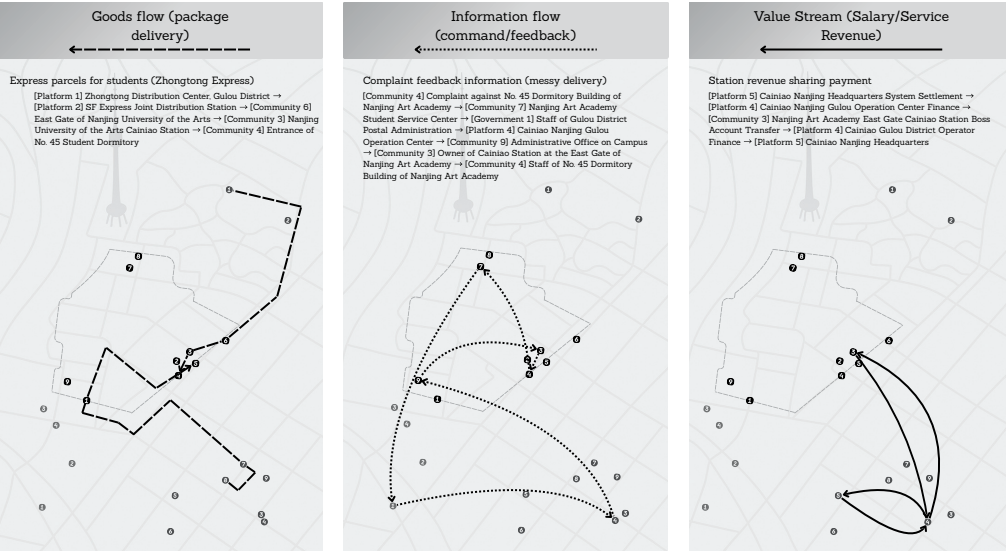
GOVERNMENT	PLATFORM	COMMUNITY
1 Policy executor	1 Sorter	1 security guard
2 Prevention clerk	2 Courier	2 security guard
3 Neighborhood Committee	3 Financial staff	3 Post Office Boss
4 Urban management	4 City Manager	4 Post staff
	5 Policy staff	5 Post staff
	6 Regional Manager	6 Property Manager
	7 Takeaway dispatch manager	7 Student Services Tutor
	8 Product Manager	8 Security teacher
	9 Maintenance worker	9 Post staff

POSITIONS AND NUMBER OF PEOPLE AT EACH LOCATION



After getting the connection, you can map the connection between the characters to reality. Here, Nanjing University of the Arts in Gulou District, Nanjing is selected as an example. According to the characters in the cards, find their corresponding positions in reality, their physical locations in reality, and the estimated number of people. Then map the actual flow of items, information, and value between these characters in reality

MAPPING EXAMPLES



CO-DESIGN WORKSHOP

PREFERABLE FUTURE

Participants will jointly explore the reshaped logistics system in 2045, which will be based on high automation, strong government intervention and decentralized platform governance. The moderator will introduce this ideal future and lead a structured discussion around its impact: Which existing roles (such as couriers or dispatchers) may disappear completely? Which roles may evolve or be redefined? In the transformed logistics landscape, what new mechanisms, infrastructures or service nodes may emerge to meet the diverse needs of the community?



1. A DECENTRALISED, COMMUNITY-LED LOGISTICS ECOSYSTEM

In 2045, the last-mile logistics system in urban China has transitioned from a platform-monopoly model to a decentralised, community-led governance structure. Platforms now focus on infrastructure and technology provision, while community organisations have reclaimed operational control of the 'final 100 meters'. Residents no longer experience standardised, one-size-fits-all delivery – instead, service design is tailored to the unique needs of each neighbourhood.

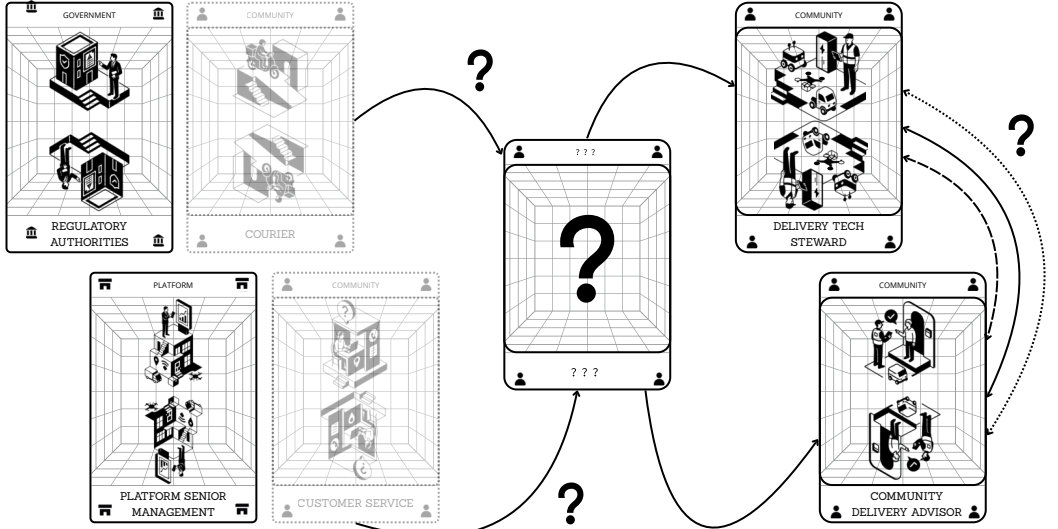
2. POST-AUTOMATION EMPLOYMENT RECONFIGURATION

Although traditional roles like couriers and sorters have been largely replaced by drones and autonomous vehicles, these workers have not disappeared. Through state-supported retraining and the rise of community logistics hubs, former platform workers have become delivery consultants, drone operators, robot maintenance staff, and logistics coordinators embedded within communities. Automation no longer displaces, but redistributes and empowers.

3. CUSTOMISED, HUMAN, AND RESILIENT LOGISTICS SERVICES

Logistics has become a care-oriented public service. In elderly communities, AI-supported routing prioritises safety and familiarity: in art campuses, heavy exhibits are escorted by trained handlers. Privacy, accessibility, and inclusiveness are now core principles. This system sustains both efficiency and social equity – proving that technological progress need not come at the cost of human dignity or meaningful work.

- Participants will engage in a layered process of future system reconfiguration and transformation planning. Based on scenarios for 2045, we will identify role migration trends - for example, some platform-based jobs will move to community-managed areas.
- Participants compare job structures, identify migration and re-employment paths, and analyze the roles of different actors (e.g., how government policies intervene, how platforms are restructured, how workers are retrained).
- Participants will jointly identify key system transformation points - such as the decentralization of logistics governance or the openness of platform protocols - while exploring which transformations are inevitable, which transformations need to be proactively designed, and which supporting mechanisms (policy or technology) are essential to achieve a just and inclusive transformation.





PROJECT OUTPUTS

Current Job System

- fragmentation, outsourcing, and fragility

Road Map

- Panoramic view of evolutionary logic from 2025 to 2045

Future Job system map

- Embedded in the community, co-management and co-governance
- Redefining logistics as public infrastructure

COMMUNITY VS. LOGISTICS IN 2025 Forced parcel locker use

By 2025, China's urban logistics system is tightly controlled by a few large platforms. From warehouses to long-distance transport to final delivery, nearly every step is governed by algorithms focused on speed and cutting costs. To avoid spending too much on labor, platforms rely on millions of outsourced couriers, offering little protection and no connection to local communities. For the platforms, each delivery is just a line of code. But for users and neighborhoods, those lines often don't match their real needs.

Communities have little say in how logistics work around them. Services are inconsistent—some people can't get timely deliveries, while others are forced to use parcel lockers. Outside the community, couriers face exhausting workloads, and platforms now want to replace them with machines to save even more money. In chasing efficiency, platforms have weakened both service quality and worker security. What looks fast and smart on the surface is actually becoming more fragile underneath.

Forced parcel locker use sparked complaints

Users were made to accept deliveries into lockers without permission; cities passed laws to stop this.



Courier died from overwork

Riders working under high pressure suffered fatal accidents; platforms gave minimal compensation.



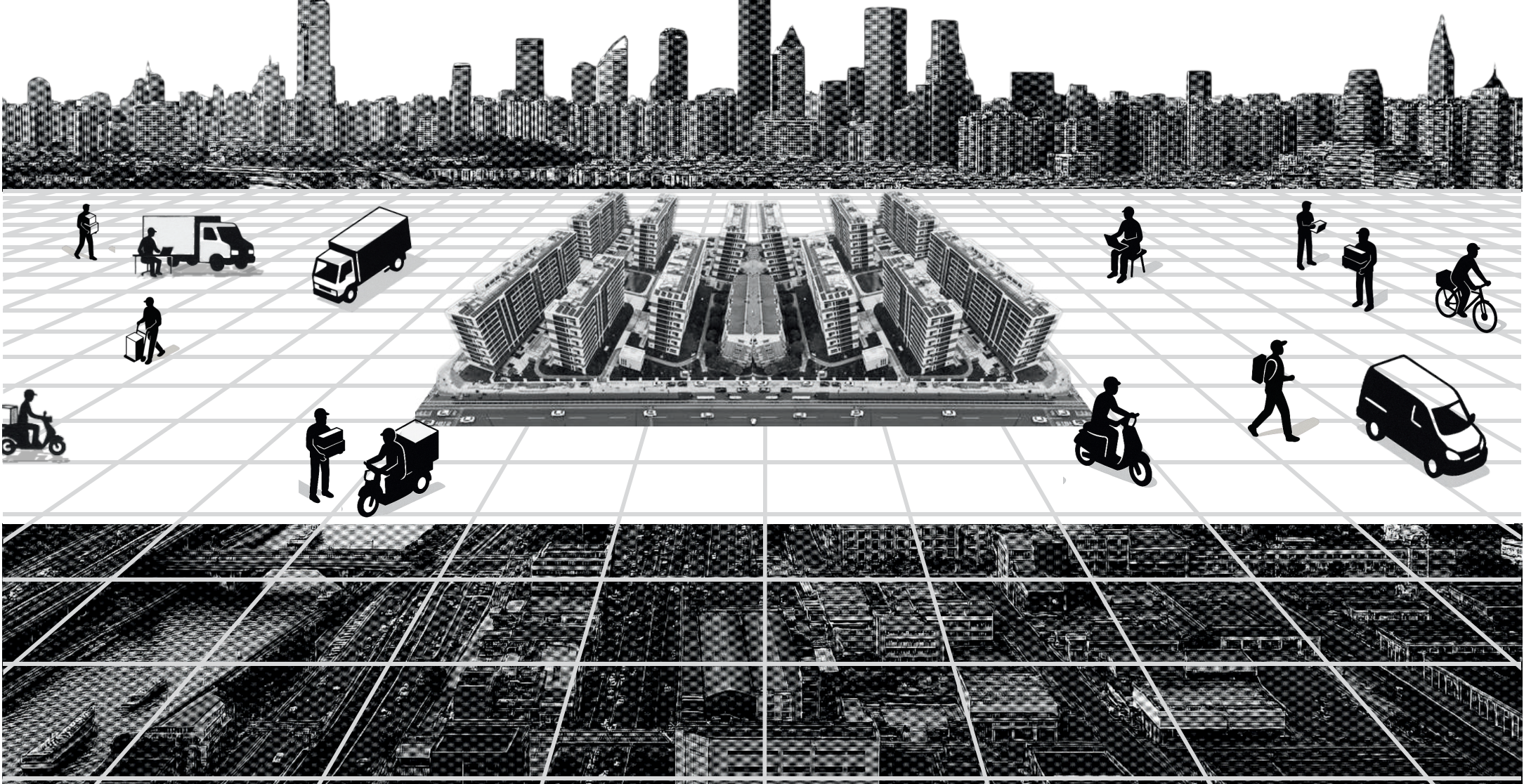
Meituan fined for monopoly behavior

Users were made to accept deliveries into lockers without permission; cities passed laws to stop this.



Riders work without basic protections

Most riders lack contracts and social security; platforms avoid responsibility by calling them “flexible workers.”



COMMUNITY VS. LOGISTICS IN 2025

COMMUNITY

Various communities in Nanjing's Gulou District have natural advantages in organizational coordination, people-oriented services and flexible scheduling, and residents have increasingly higher demands for service quality. However, the community's current participation in the terminal logistics system is extremely low, and it only remains at the passive receiving level. In the future, with proper policy and resource support, the community may become the manager of distribution services and the employer of employment.



PROPERTY MANAGER, 1-2 PEOPLE

Security guard or community management staff. Help the elderly pick up parcels and contact couriers to handle abnormalities. But this is not their job, most of them are just volunteering out of the mentality of helping acquaintances.



SHOPKEEPER DROP-OFF POINT, 1 PERSON

Small convenience stores may temporarily hold parcels for neighbors, especially in buildings without lockers. This service is usually provided as a favor or to attract foot traffic—not part of a logistics network.

LOGISTICS PLATFORMS AND FRONTLINE

On the one hand, large platforms (such as Meituan, JD.com, and Cainiao) hope to monopolize user experience and data by controlling the last mile. On the other hand, they try to reduce labor costs and avoid responsibility through automated equipment, which ultimately leads to a decline in delivery service quality and a large number of job losses. In the future, platforms may be forced to "give up power" and accept institutional supervision and job outsourcing transformation.



REGIONAL MANAGER, 1-2 PEOPLE PER CITY

Oversees platform operations in a large urban area like Nanjing. Sets performance KPIs, allocates budgets, manages delivery network efficiency. Rarely interacts with frontline workers, focuses on data dashboards and quarterly reports.



DELIVERY HUB MANAGER, 1-3 PEOPLE PER HUB

Manages a local express delivery hub. Assigns delivery zones, resolves route conflicts, handles complaints and missed deadlines. Responsible for both personnel and parcel flow—but usually under pressure from both the platform and riders.



RIDER CAPTAIN , 1 PER 30-50 RIDERS

Platform-appointed leader among riders. Organizes morning briefings, pushes rules from the app, reports violations. Does not have formal HR power, but acts as the local 'middle manager' within the gig system



DATA ANALYST / DISPATCH ENGINEER,

Designs the route optimization logic and delivery incentives. Their system determines whether a rider earns more or misses a deadline. The real "invisible boss" of thousands of workers.



FOOD DELIVERY RIDER, 3000-5000 PEOPLE

Delivers meals under real-time monitoring. Paid per order, penalized for lateness or customer complaints. Highly vulnerable to weather, traffic, and app updates.



EXPRESS COURIER, 2000-4000 PEOPLE

Delivers parcels from regional hubs to users. Also responsible for collecting return packages and basic customer service. Must meet delivery quotas while handling heavy parcels.



TRUCK DRIVER, 200-400 PEOPLE

Handles short-distance regional transport between warehouses, hubs, and city terminals. Often subcontracted; rarely visible to platform branding.



WAREHOUSE SORTER, 300-600 PEOPLE

Physically scans, sorts, and redirects parcels in sorting facilities. Works in shifts, often night-time labor. Job stability is low, automation pressure is high.

GOVERNMENT

At present, the terminal logistics in Gulou District is mainly market-driven. The government lacks supervision in terms of facility construction, labor rights, platform governance, etc., and only in some cities has it issued passive regulations such as "express delivery requires authorization". In the future, with the increasing pressure on the employment structure and the expansion of automation, local governments will assume more institutional roles in platform supervision, job redistribution and community collaboration.



SUBDISTRICT LOGISTICS COORDINATOR, 1 PER STREET

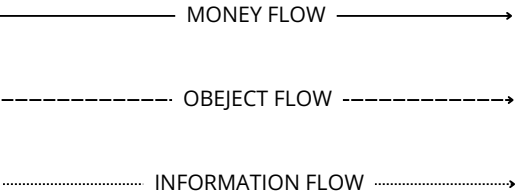
Receives complaints from residents about blocked roads, delivery disputes. Currently operates in a reactive mode—without the authority or tools to actively shape local logistics policies.



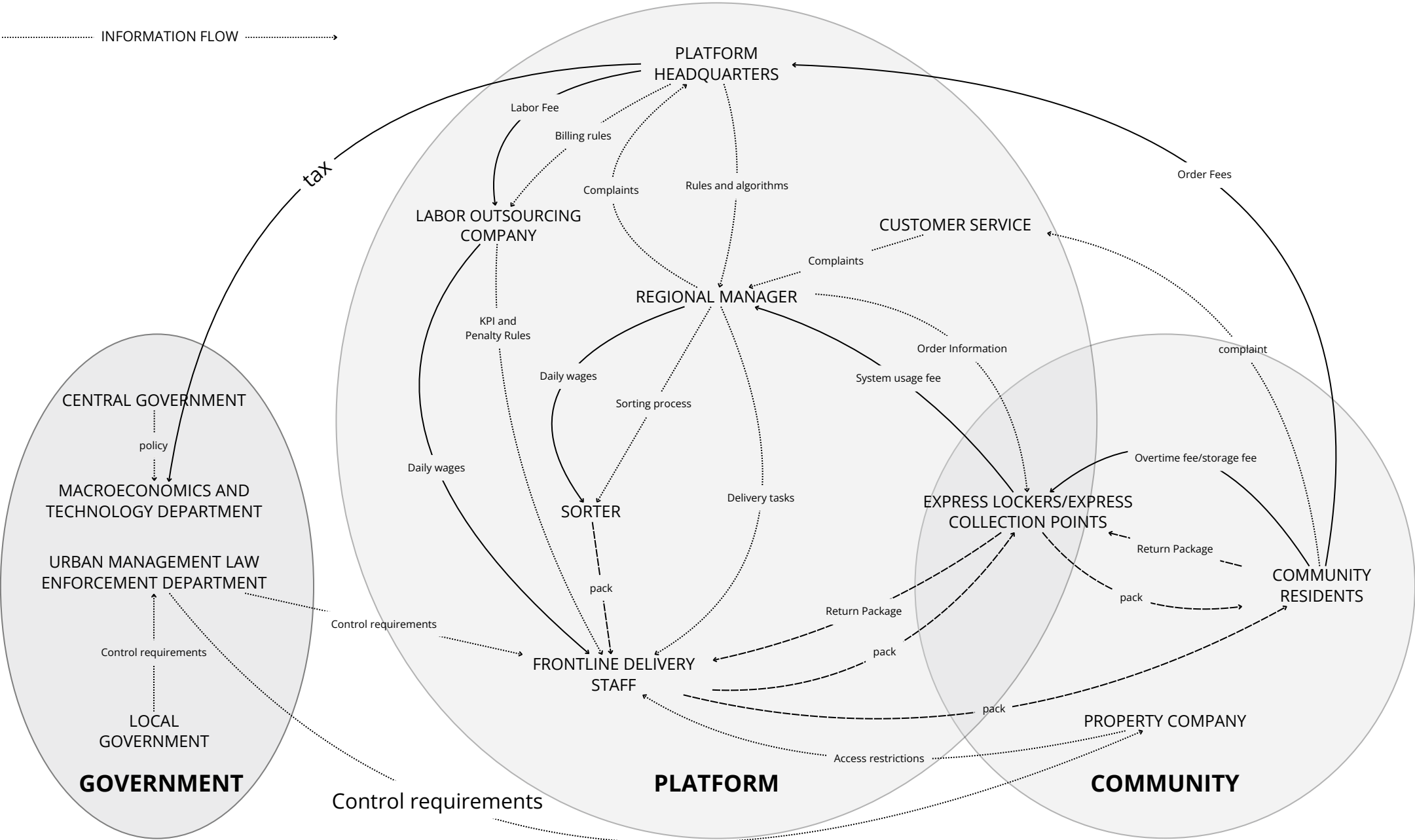
URBAN MANAGEMENT

Handles enforcement against parking violations, noise complaints. Focuses on visible order issues caused by frontline workers, but has no power to regulate platform-wide logistics behavior.

COMMUNITY VS. LOGISTICS IN 2025



In the current system, the platform almost monopolizes the main channels of goods flow, information flow and value flow. The government intervention is mainly through "policy suggestions" and "occasional subsidies", and it is difficult to intervene in the operation of the platform. The community can only participate in the system as a "cooperating role", and it is difficult to lead or reverse feedback. The service experience is fragmented and lacks guarantee.



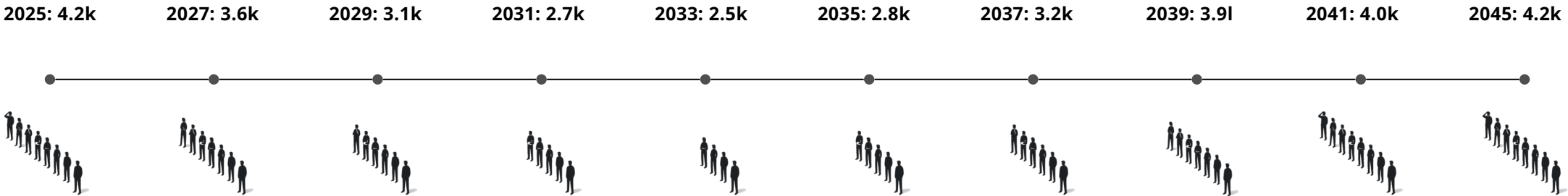
JOB QUANTITY FORECAST (GULOU DISTRICT, NANJING)

The platform's automated deployment is advancing rapidly, terminal jobs are being largely replaced, infrastructure construction is absorbing some jobs, and re-employment support has not yet been established.

The reskill and social security plans have been fully launched, and the reduction in jobs will not cause large-scale negative impacts.

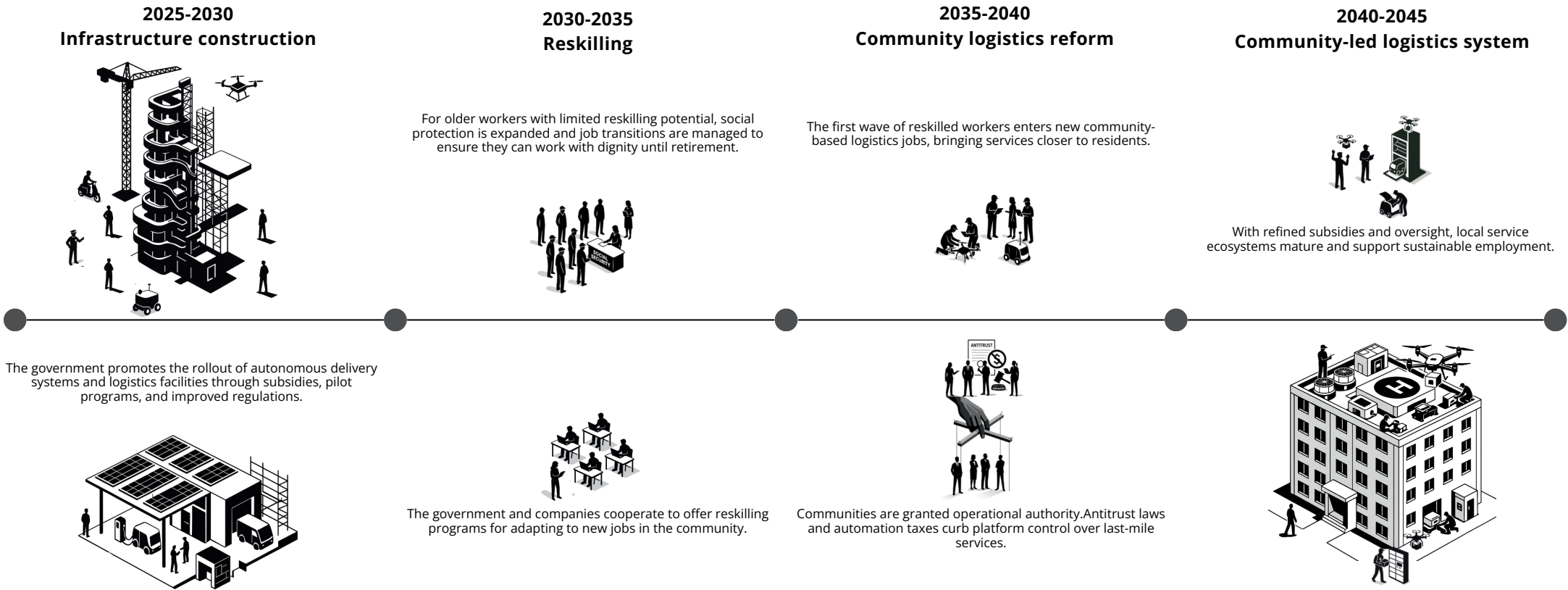
New community-based service roles begin to emerge alongside government-led reskilling programmes.

By 2045, the total number of logistics-related jobs is expected to return to 2025 levels.



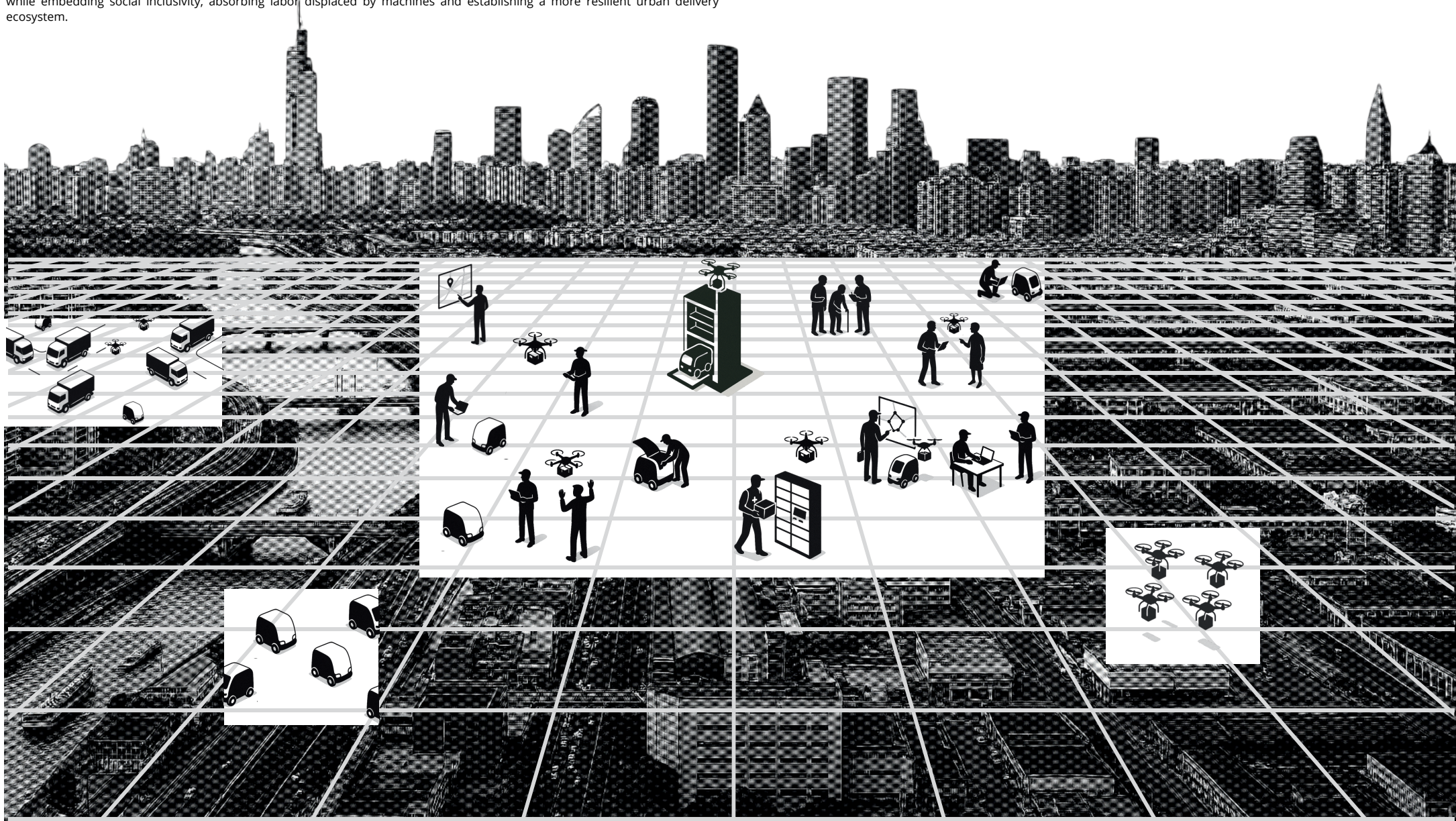
ROADMAP

Between 2025 and 2045, China's urban last-mile logistics sector underwent a four-phase transition from gig-based, platform-dominated labor to a community-centered, resilient employment ecosystem. Through a coordinated mix of policy intervention, platform transformation, and community activation, roles that were once eliminated by automation were gradually reshaped into stable service and coordination jobs. Employment resilience became a formal design goal, and the system reached a dynamic balance between efficiency and inclusion.



COMMUNITY-LED LOGISTICS OPERATIONS IN 2045.

By 2045, last-mile logistics in Chinese cities has shifted from platform monopolies to decentralized, community-governed systems. Government intervention—including taxation of automation, policy mandates, and direct subsidies—has compelled platforms to surrender part of their control over last-mile delivery. Communities have established their own logistics platforms, staffed with human coordinators and supported by customized autonomous delivery devices. Rather than enforcing rigid, standardized routes, community logistics now operate on-demand based on residents' personalized preferences. Platforms have repositioned themselves as infrastructure providers, offering trunk-line scheduling, equipment leasing, and regional support, while governments evaluate job absorption and distribute fiscal support. This structure retains the efficiency of automation while embedding social inclusivity, absorbing labor displaced by machines and establishing a more resilient urban delivery ecosystem.



COMMUNITY-LED LOGISTICS OPERATIONS IN 2045

COMMUNITY

In 2045, the community transforms from a passive recipient of logistics services into an autonomous operational unit. With the support of government policy and platform infrastructure, communities establish their own logistics platforms, coordinate human-machine interactions, manage customized delivery services, and maintain local delivery infrastructure. These new roles enable job absorption and inclusive service delivery.



HUMAN-SYSTEM INTEGRATION OFFICER
APPROX. 2-3 PEOPLE PER COMMUNITY

Coordinates delivery requests by assigning parcels from the platform to community-specific autonomous devices, bridging digital systems and physical delivery routes.



EQUIPMENT OPERATIONS & MAINTENANCE OFFICER
APPROX. 1-2 PEOPLE PER COMMUNITY

Responsible for the daily upkeep, calibration, and performance adjustments of local delivery robots, lockers, and drones.



USER COORDINATION OFFICER
APPROX. 1-2 PEOPLE PER COMMUNITY

Collects residents' delivery preferences, special service needs, and feedback; ensures that logistics operations reflect community diversity and inclusivity.

PLATFORM

In the new system, platforms shift from monopolizing the entire delivery chain to serving as technology and logistics infrastructure providers. Their role narrows to inter-community routing, device leasing, and software services, while allowing communities to control the last segment of the delivery process.



REGIONAL SUPPORT CENTER
APPROX. 5-10 PEOPLE PER REGION (SERVING 10-20 COMMUNITIES)

Acts as the interface between the platform and communities, facilitating dispatch logic, service coordination, and technical support.



EQUIPMENT PROVISION TEAM
APPROX. 30-100 PEOPLE PER CITY

Designs, manufactures, and services delivery hardware based on feedback from local communities; key to enabling adaptive automation.



AUTONOMOUS DELIVERY DEVICES (CITY-LEVEL)
NO HUMAN OPERATORS; SYSTEM NODES

Performs high-efficiency transport between sorting centers and community borders, enabling flexible and unmanned trunk logistics.

GOVERNMENT

Government plays a more active role as a regulator, investor, and systemic integrator. It sets policy boundaries for automation, collects robot-use taxes, supports community logistics systems with funding, and monitors employment transition outcomes to ensure inclusive development.



MACROECONOMIC & TECHNOLOGY AUTHORITY
APPROX. 1-2 PEOPLE PER CITY-LEVEL TASK FORCE

Develops interface standards, regulates platform algorithms, and oversees data flows and taxation logic for fair competition and public benefit.



LABOR & SOCIAL SECURITY REPRESENTATIVE
APPROX. 1 PER DISTRICT OR SUBDISTRICT

Evaluates the performance of community platforms in job absorption and social stability; bridges the gap between policy goals and real-world outcomes.

COMMUNITY-LED LOGISTICS OPERATIONS IN 2045

The system runs on a “platform-to-community” model: platforms deliver parcels to the edge of the community, and the final 100 meters are handled locally. Residents place orders through platform apps; autonomous vehicles transport packages from city hubs to community logistic nodes. A regional support center then dispatches the task to the community logistics team. Within the community, a user coordinator collects residents’ delivery preferences, a human-machine integrator assigns packages to appropriate devices (or triggers manual delivery when needed), and a maintenance operator adjusts and manages delivery machines. Financially, residents pay the platform; the platform splits a portion of the service fee to the community. Meanwhile, the government subsidizes community operations based on employment performance and service quality. The result is a decoupled but cooperative flow of information, goods, and value—designed to be both efficient and inclusive.

